



User satisfaction with specialised transport for disabled in Norway



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ABSTRACT

The aim of this article is to examine factors that are most important for the users' overall satisfaction with specialised transport services for the disabled (STS) in Norway. The article focuses especially on gender differences. We find that the three factors most strongly influencing overall satisfaction with the STS for all users are the size of the area in which the service can be used, the comfort experienced during transport, and the number of trips on which STS can be used. Men's satisfaction with the STS is more strongly influenced by the size of the travel area than is the case for women. The degree to which women are satisfied with the STS is more strongly influenced by the comfort and number of trips than is the case for men. The method used in this article to measure users' overall satisfaction can be valuable for other researchers conducting comparable studies, and our findings may be applied by politicians aiming to design an STS which fulfils the needs of the elderly and disabled.

1. Introduction

The European population is growing older, and by 2060, approximately 30% of the population of the European Union will be older than 64 years of age (European Commission, 2012). A similar trend is predicted in Norway (Andreassen, 2011). Considering the strong correlation between age and the likelihood that an individual suffers from mobility impairment (see Hjorthol et al., 2011; Metz, 2000), it is reasonable to assume that the number of people with a disability will increase in the future.

Transport planners are increasingly concerned with ensuring mobility to all groups of society through good access to transport (Lucas and Musso, 2014). Improved mobility makes it easier to maintain contact with family and friends, and to take part in public and private services (Hjorthol et al., 2011; Schmöcker et al., 2008). People with disabilities have particular challenges in terms of transport.

During the last two decades, universal measures such as the introduction of low-floor buses, tactile warning and guidance surfaces, ramps and lifts in place of steps, as well as better and more immediate and useable information both before and during journeys have made transport more accessible. However, to make all transport services universally accessible, especially for those with the most severe disabilities, such services would become too costly to be feasible. Thus, all counties in Norway are obliged to offer their elderly and disabled access to special transportation services (STS).

It has been acknowledged that women's mobility patterns differ from that of men's (Miralles-Guasch et al., 2016), and that disabled

women are in a relatively more disadvantaged position than disabled men regarding transport (Thomas, 2006). However, there seems to be a lack of studies on gender differences with regard to STS. Therefore, this article gives special attention to the topic of gender in relation to STS.

Specialised transport has a long history in Norway. In 1988, the Ministry of Transport and Communications imposed upon the 19 counties in Norway to organise adapted transport for people who for various reasons cannot use ordinary public transport. The arrangement is referred to as the STS, which is to be used for leisure trips only. How each county organises the service, how many people with mobility impairments are allocated an STS-card and how many trips the users receive varies significantly between counties since no national set of rules exist (Solvoll, 2012; Solvoll and Hanssen, 2015). Therefore, the benefit each user derives from the service varies according to their county of residence.

The STS is normally organised as an individual door-to-door service carried out by ordinary taxis or maxi-taxis that can carry people in wheelchairs. To be approved as an STS user, applicants must have a permanent mobility impairment that makes the person unable to, or only with considerable effort able to, use ordinary public transport. In 2015, approximately 113,000 persons had an STS-card, which correspond to about 2.2% of the population in Norway. Nationwide, the expense for the STS (exclusive of administrative costs) was approximately 500 mill. NOK (about 55 mill. €) in 2016. The expenses are the price for the trips minus the user fee, which is about equivalent to the bus fare for a trip of the same length. However, the number of yearly trips offered STS users varies considerably between counties.

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The aim of this study is twofold. First, it provides a principal discussion of the importance of transport for people's well-being and a discussion about factors influencing user satisfaction with the STS. Second, using empirical evidence gathered from STS users, we analyse which factors are the most important for users' overall satisfaction with the service. Special attention is given to gender differences in satisfaction. This is valuable knowledge for policymakers aiming to improve the mobility of the elderly and disabled, and, as such, improve their quality of life.

The article is organised as follows. In [Section 2](#) the social importance of transport and mobility is discussed. In [Section 3](#) factors influencing the satisfaction with the STS service are presented. In [Section 4](#) the data and variables are presented together with a priori assumptions on how the variables are related. The model specification and estimation results are reported and discussed in [Section 5](#). Finally, in [Section 6](#) closing remarks are given together with implications for further research and policy.

2. Social importance of transport and mobility

The connection between travel (or mobility) and quality of life is well documented. Based on a review of the literature, [Ettema et al. \(2010\)](#) concludes that the impact of travel on subjective well-being arises from three sources. First, the positive and negative experiences made during the actual travelling. Second, that travel facilitates engagement in activities that help one to progress toward goals and to experience positive emotions. Third, that the organisation of travel has implications for the ease with which activities are performed.

Based on an overview of studies concerning travel and well-being, [de Vos et al. \(2013\)](#) develop a theoretical model of the link between travel and well-being. They suggest that travel behaviour affects well-being through experiences during travel, activity participation enabled by travel, activities during travel, trips where travel is the activity and through potential travel.

On the basis of [Jones and Lucas \(2012\)](#), the social outcomes of transport can be divided into five categories: accessibility, mobility, health, finance, and community. Accessibility is a measure of the degree to which people have the potential to obtain the goods and services that they want ([Jones and Lucas, 2012](#)). Accessibility can be restricted by reduced access to public transport, disability, absence of public transport services or that the cost of using public transport are regarded as too expensive ([Jones, 2011](#)). Measures that reduce the accessibility gap will therefore increase the mobility of people with disabilities, simplify their everyday life and contribute to improved quality of life.

Transport is important for social interaction in communities. By providing residents possibilities to meet and carry out activities, transport contributes positively to social interaction in the local community, providing increased social activity and improved quality of life for residents ([Jones and Lucas, 2012](#)). Persons with disabilities are more vulnerable to social exclusion than the elderly, due to a set of factors that influence each other; low income, low mobility and the small proportion of this group with their own car ([Rye and Mykura, 2009](#)). These factors make it even more important and demanding to arrange a transport service for this group. Increased travel frequency can mean increased involvement in out-of-home activities (i.e., an advantage), but it may also indicate that walking is too hard (i.e., a drawback). Longer journeys are regarded as either an advantage, because travellers can reach destinations farther from their residence, or as a disadvantage because people are forced to travel far to carry out errands. Thus, it is unclear whether increased travel activity indicates a weakened or strengthened welfare.

On the other hand, transportation affects public health negatively through pollution, including the incidence of asthma and respiratory disease, in addition to providing reduced life expectancy ([British Medical Association, 2009](#)). Noise can cause hearing impairment, hypertension, heart disease and sleep problems ([Passchier-Vermeer](#)

[and Passchier, 2000](#)). Effective measures to improve traffic safety and reduce pollution from transport will thus result in welfare gains.

The economic impacts of transport stem from travel expenses reducing funds available for other purposes. Those who cannot manage to pay for transport will be excluded from everyday activities essential for good quality of life ([Levitas et al., 2007](#)). By allowing groups such as pensioners and disabled people to get access to public transport at reduced prices, the economic burden of transport could be reduced.

3. Factors influencing satisfaction with the special transportation service

Below we will discuss factors that are reasonable to assume will affect how satisfied the STS users are with the transport service they receive. We distinguish between traditional factors and factors that are of particular importance to STS. The review forms the basis for the model specification in [Section 5](#).

3.1. Traditional transport quality elements

The first transport quality element is how travellers perceive the safety (*SAFETY*) of using the STS. Travellers by STS risk injuries from traffic accidents, braking/acceleration of the vehicle, incidents during boarding/alighting, and incidents during transport to/from the vehicle ([Wretstrand et al., 2004](#)). How safe passengers feel using a particular mode of transport influences their use of public transport (see [Delbosc and Currie, 2012](#)). It is therefore reasonable to assume that the safer travellers feel, the more satisfied they are. However, whether this impact differs between men and women is difficult to say. It could be argued, on the one hand, that females have a stronger emphasis on *SAFETY* because they feel more prone to violence (robbery and rape). On the other hand, STS users tend to be elderly (with a majority of women) who perhaps do not feel as insecure as younger women do. However, a study by [Currie et al. \(2013\)](#) did not find gender and age to have any direct influence on feelings of safety on public transport.

The second transport quality element is price (*PRICE*). Price is a universal transport service element ([Mathisen and Solvoll, 2010](#)) and it is reasonable to assume that those who are satisfied with the price for using the STS are more satisfied with the STS overall. However, two arguments, drawing in opposite directions, can be made with regard to how *PRICE* influences *SATISFACTION* for men and women.

In Norway, the average income is lower for females than for men ([Statistics Norway, 2017](#)). This indicates that women should be more concerned about trip costs than men, and that price therefore will more strongly influence women's satisfaction with the STS. As we do not have income data from our sample, we cannot say for sure that this income difference is also valid for our respondents. However, in the opposite direction, one finds empirical studies from different markets indicating that males are more price sensitive than females (see [Chen and Hu, 2012](#); [Shumaker et al., 2009](#); [Ulbrich et al., 2011](#)).

Comfort (*COMFORT*) is the third transport quality element. Comfort is highly valued by public transport users. Passengers who are satisfied with comfort are more likely to rate the overall service quality to be good as compared to passengers who are dissatisfied ([Aidoo et al., 2013](#)). Moreover, [dell'Olio et al. \(2011\)](#) found that comfort is most important for people over 65 years. Considering that the majority of the STS users are elderly, it is reasonable to expect that there is a positive association between *COMFORT* and *SATISFACTION*. Given the special emphasis put on gender differences in this study, it is also worth noting that women tend to consider comfort to be more important than men do ([Karlsson and Larsson, 2010](#)).

The fourth transport quality element is punctuality (*PUNCTUALITY*). This factor relates to whether the taxi arrives at the agreed time. If the taxi arrives late, the traveller will have to wait. Waiting represents time the traveller sees as lost, and the loss of time is irritating ([Lirman, 2008](#)). Consequently, we expect to find a positive

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